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Statement of

Mr. James E. Webb
Administrator

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

before the
Committee on Aeronautical and Space Sciences
United States Senate

April 24, 1963

Mr. Chairman and Members of the Committee:

It is an honor to appear here today to present the President's recommendation for authorization of funds for the program of the National Aeronautics and Space Administration for the fiscal year 1964.

I would like to make a general statement giving an outline of the program ahead. Today, Dr. Dryden is here and with your permission will discuss the accomplishments of the international program of NASA and speak about future trends in the space program. As you know, Dr. Dryden recently met in Rome with representatives of the U.S.S.R. for discussions and negotiations regarding cooperative programs. Dr. Seamans will be here this afternoon to present the over-all NASA program, after which the responsible NASA officials will be prepared to present the details of the various program areas.

The total NASA request for fiscal year 1964 is \$5,712,000,000 and is comprised of \$4,912,000,000 for research, development and operation and \$800,000,000 for

construction of facilities.

Turning first to the programs carried under the section on Research, Development and Operation, there are five major program areas.

With respect to the manned space flight program, the request in this budget is for \$3,758,200,000. It is under this program that the Mercury project will be completed with the scheduled one-day earth orbit mission scheduled for next month. We are proceeding with the Gemini project which will prove out much of our Apollo technology, provide experience and training for our flight crews, and provide answers to important problems associated with rendezvous and long duration flight. The Gemini project is planned to lead logically on to the Apollo project in a continuing integrated schedule designed to give us the technical capability, the scientific advances, and the trained flight and ground crews, which will culminate, insofar as this budget is concerned, with landing men on the moon, exploring its characteristics, and returning them safely to earth. All of these programs have specific objectives and form a total program that has a broad objective of establishing, for the United States, pre-eminence in manned space flight. This budget does not include programs to utilize this capability beyond the Apollo program.

As this Committee knows, to overcome gravity and inertia and launch men into space, we use a gigantic controlled release of energy through fuel burned in rocket engines. The Advanced Saturn's five engines burn 900 tons of fuel per minute and produce 7-1/2 million pounds of thrust. This is a very large machine and requires big buildings for its assembly, big test stands for static firings, and big launching facilities. The facilities required to handle these big space machines are an essential foundation for our Nation's space power. They can be used for military or civilian purposes as required. Since they are capital investments that will be useful over long periods, the budgetary requirements are heavier in the earlier years of our programs.

In the area of Space Sciences, NASA is requesting \$836,700,000. The Office of Space Sciences conducts programs to investigate the characteristics of the earth, the near and far regions of space, the sun and its influence on earth, the moon, and our neighboring planets. These programs are conducted using sounding rockets, earth orbiting satellites, lunar probes, planetary and interplanetary probes. At present, the United States clearly leads the world in hard-won knowledge in the important areas of geophysics, solar physics, and interplanetary science. We are continuing an aggressive program in this area to assure that the United States retains its leadership.

Basic to NASA's space sciences program is the fact that scholars and researchers, scientists, and engineers in qualified educational institutions widely spread throughout the Nation are the principal reliance for the production, extension, and communication of new scientific and technical knowledge. In carrying out these responsibilities, the universities, and the teachers in them, relate the training of additional people to the process of research. Consequently, they are in a position to expand rapidly the areas of fundamental knowledge on which our advances in engineering must be based and are sources of the additional scientific and technical personnel required by the United States in meeting the objectives of its aeronautical and space programs. In addition to the direct research support of the space program and training of new personnel, universities are also uniquely qualified to bring to bear and focus the work of economists, businessmen, scientists, and engineers on the potentials for solving problems of economic growth through the utilization of the results of the research we do to accomplish our principal missions in space.

Thus, there is a close relation between our efforts in the space sciences and our efforts in the area of applications.

The budget estimate for our Applications program is \$140,700,000. In this area, NASA is developing the spacecraft

and technology needed to establish operational meteorological and communications satellite systems. In addition, the Office of Applications has heretofore carried the responsibility for working out ways and means to catalogue and make available to industry and other leaders innovations and processes arising from our space development efforts which can form a basis for economic growth or the solution of other problems faced by our society. Recently this responsibility was joined with that of policy planning in the Office of Technology Utilization and Policy Planning, under Dr. George L. Simpson, Jr., Assistant Administrator.

Useful work in space, including useful scientific work, depends on advanced technology.

The request for the Advanced Research and Technology program is \$597,200,000.

The Office of Advanced Research and Technology is charged with providing a continuing and advancing broad technological and research base for this country's future aeronautical and space activities. In this program, research is conducted in the many fields related to aircraft, propulsion, launch vehicles, spacecraft, electronics, systems integration and management, tracking and data acquisition, re-entry, methods of simulation and training, and related human factors.

The technological advancements made as a result of this kind of research effort in the past have formed the basis for all our present aircraft and space systems, and a continuance of this kind of effort is the only sure way for this Nation to maintain its position of leadership in aeronautics and space activities in the years ahead.

The results of useful work in space, at present, are precise measurements, a wide variety of data and information, and all of this must be returned to earth to be of use.

The request for NASA's Tracking and Data Acquisition program is \$379,200,000. Every space flight mission in our present program, whether rocket development, scientific satellite, space probe, or manned spacecraft is undertaken to gather information in a form that can advance our base of knowledge and thus add an increment to our technological capability. The critical means to get such information back to the managers of the missions and then to the scientists in our laboratories and universities, is the world-wide network of tracking and data acquisition stations. It should also be noted that vast amounts of information received each day must be placed in a form that can be used by the scientist and engineer. It is the automatic data system utilized by NASA's Office of Tracking and Data Acquisition which

accomplishes this task. Since the sun never sets on our work in this area, it provides a continuing image in the countries where our stations are located all around the world of the way our efforts in space can be of value to all nations, and is thus doubly important because many of these tracking stations are manned by the nationals of the host countries. In some cases the operation of foreign stations is completely paid for by the host nations. This system of stations located around the world is a tremendous national and free world asset and makes a tremendous contribution to our Nation's space program.

The Construction of Facilities section of our request for 1964 totals \$800,000,000.

In the Committee's hearings today, tomorrow, and Friday, responsible officials of NASA will make a complete presentation of these complex programs. In the five volumes of the justification books which have been submitted to you, a full breakdown of each part of the program has been made with an explanation of what, where, how, and when work will be done and what it is expected to cost. It is important to note that the budget requested for the total program of NASA for fiscal year 1964 includes less than \$50,000,000 for new programs. The remainder is to maintain the projects now

under way on schedule and to pay the contractors for the work they have obligated themselves to do to meet these schedules.

The policy on which this budget is based is the mastery of space, and its utilization for the benefit of mankind. This mastery, and the relation of our position to those of other nations, will not be determined by any single achievement. Superiority in the space environment will be won and very likely can be held by that nation which first fashions into a usable system all of the scientific knowledge, all of the technology, all of the experience, all of the space launch and terminal facilities, and all of the aids to space navigation required for safety and regular operation.

These are the capabilities and resources which the United States must have, and this budget is designed to make rapid progress toward acquiring them. /

Moving from our present position to achieve mastery of space requires that we add substantially to our scientific knowledge and to our utilization of technology. These NASA program is progressing on both of these fronts. In a complex effort such as this, conducted in a new medium about which much is yet unknown, the scientist and the engineer must work closely together and grow increasingly dependent upon one another. We are encouraging this intimate partnership

in every way we can in all our NASA Centers, in industry, and in the Nation's universities.

In the exploration of space, the scientist must depend upon the engineer to design the equipment which will enable him to investigate conditions and forces which exist there. But, at the same time, the engineer must look to the scientist for precise knowledge which will enable him to design equipment which will be more efficient and reliable in this harsh environment.

The NASA program, therefore, is designed to expand both science and technology. We are moving forward on a broad front. We have avoided a narrow program--one limited, for example, to developing only the technology needed to reach the moon with state-of-the-art hardware. To do so might well be to find, some years hence, that we had won the battle and lost the war as far as ultimate and enduring superiority in space is concerned.

Thank you for the opportunity to make this statement. The authority and funds requested have been determined by the President to be required to meet our space requirements in the light of all other Governmental requirements. In this budget we believe we have an excellent program balance, goals that can be met, a capability to shift emphasis as required

by new developments, a capability to identify and take advantage of new opportunities as they arise, an effective marriage of the applicable resources of industry, universities, scientists, engineers, and Governmental entities, and the means to do NASA's part to meet the emerging needs for coordinated effort within Government activities and operations. We have established effective, prudent, and businesslike methods of going forward to do what is needed. We appreciate the support this Committee and the Congress has given this program. We respectfully urge your favorable consideration of this budget.

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